Instruction Sheet
PN 51A-5081T-FF/FI/rev.A
November 2005

Model 5081T-FF/FI

FOUNDATION Fieldbus® Two-Wire Conductivity Transmitter

For additional information, please refer to the Instruction Manuals CD shipped with this product, or visit our website at *www.emersonprocess.com/raihome/liquid/*.

ESSENTIAL INSTRUCTIONS

READ THIS PAGE BEFORE PROCEEDING!

Your purchase from Rosemount Analytical, Inc. has resulted in one of the finest instruments available for your particular application. These instruments have been designed, and tested to meet many national and international standards. Experience indicates that its performance is directly related to the quality of the installation and knowledge of the user in operating and maintaining the instrument. To ensure their continued operation to the design specifications, personnel should read this manual thoroughly before proceeding with installation, commissioning, operation, and maintenance of this instrument. If this equipment is used in a manner not specified by the manufacturer, the protection provided by it against hazards may be impaired.

- Failure to follow the proper instructions may cause any one of the following situations to occur: Loss of life; personal injury; property damage; damage to this instrument; and warranty invalidation.
- Ensure that you have received the correct model and options from your purchase order. Verify that this manual covers your model and options. If not, call 1-800-854-8257 or 949-757-8500 to request correct manual.
- For clarification of instructions, contact your Rosemount representative.
- Follow all warnings, cautions, and instructions marked on and supplied with the product.
- Use only qualified personnel to install, operate, update, program and maintain the product.
- Educate your personnel in the proper installation, operation, and maintenance of the product.
- Install equipment as specified in the Installation section of this manual. Follow appropriate local and national codes. Only connect the product to electrical and pressure sources specified in this manual.
- Use only factory documented components for repair. Tampering or unauthorized substitution of parts and procedures can affect the performance and cause unsafe operation of your process.
- All equipment doors must be closed and protective covers must be in place unless qualified personnel are performing maintenance.
- If this equipment is used in a manner not specified by the manufacturer, the protection provided by it against hazards may be impaired.

⚠ WARNING

Substitution of components may impair Intrinsic Safety or suitability for Division 2.

⚠ WARNING

Do not remove or replace while circuit is live unless area is known to be non-hazardous.

⚠ WARNING

To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing or understand and adhere to the manufacturer's live maintenance procedures.

⚠ WARNING

Explosion Hazard - Do not disconnect equipment unless area is known to be non-hazardous.

ROSEMOUNT® Analytical

EMERSON™ Process Management

PHYSICAL SPECIFICATIONS

HOUSING: Epoxy-polyester painted over low-copper aluminum. Neoprene O-rings on cover. 160.5 mm x 175.3 mm x 161.3 mm (6.3 in. x 6.9 in. x 6.4 in.)

DIAMETER: 155.4 mm (6.1 in.)

ELECTRICAL CONDUIT OPENINGS: 3/4 in. FNPT

POWER SUPPLY AND LOAD: A power supply voltage of 9 Vdc to 32 Vdc at 22 mA is required; Intrinsically Safe installations may be limited to a maximum of 2-3 transmitters per node, depending on the barrier used.

LOCAL READOUT:
Main Display is 4 digits, 20 mm tall (0.8 in.)
Message Display is ten digits, 7 mm tall (0.3 in.)

AUTOMATIC TEMPERATURE COMPENSATION:
3-wire Pt100 RTD
Conductivity: 0 to 200 °C (32 to 392 °F)
% concentration: 0 to 100 °C (32 to 212°F)

AMBIENT TEMPERATURE: -20 to 65° C (-4 to 149° F)

RELATIVE HUMIDITY: 0-95% with enclosure sealed.

CE: EMI/RFI certified: EN61326-1 CE

HAZARDOUS AREA CLASSIFICATION:

Intrinsic Safety:

FM APPROVED
Class I, II, III, Div. 1
Groups A-G
T4 Tamb = 70°C

CSA
Exia Entity
Class I, Groups A-D
Class II, Groups E-G
Class III
T4 Tamb = 70°C

ATEX CE 0600
Ex
II 1 G
Baseefa03ATEX0399
EEx ia IIC T4
Tamb = -20°C to +65°C

Non-Incendive:

FM APPROVED
Class I, Div. 2, Groups A-D
Dust Ignition Proof
Class II & III, Div. 1, Groups E-G
NEMA 4X Enclosure

CSA
Class I, Div. 2, Groups A-D
Suitable for Class II, Div. 2, Groups E-G
T4 Tamb = 70°C

Explosion-Proof:

FM APPROVED
Class I, Div. 1, Groups B-D
Class II, Div. 1, Groups E-G
Class III, Div. 1

CSA
Class I, Groups B-D
Class II, Groups E-G
Class III
Tamb = 65°C max

TRANSMITTER SPECIFICATIONS @ 25°C

MEASURED RANGE*: 50 to 2,000,000 µS/cm (see chart)

ACCURACY: ± 1.0% of reading

REPEATABILITY: ± 0.25% of reading

STABILITY: 0.25% of output range/month, non-cumulative

AMBIENT TEMPERATURE COEFFICIENT: ± 0.2% of FS/°C

COMPATIBLE RTD: 100Ω with Automatic Recognition

TEMPERATURE SLOPE ADJUSTMENT: 0-5%/° C

% CONCENTRATION RANGES:
Sodium Hydroxide: 0 to 15%
Hydrochloric Acid: 0 to 16%
Sulfuric Acid: 0 to 25% and 96 to 99.7%

LOOP SPECIFICATIONS

LOOP ACCURACY: With a standard Model 228 or 225 sensor with 20' cable, laboratory accuracy at 25°C can be as good as ±2% of reading and ±50 µS/cm.

To achieve optimum performance, standardize the sensor in the process at the conductivity and temperature of interest.

Results under real process conditions, at different temperatures, or using other sensors may differ from above.

RTD ACCURACY: Utilizing a perfect 100 Ohm RTD after 1 point temperature standardiztion, temperature reading can be as good as ±0.5°C.

RECOMMENDED SENSORS:

Model 222 Flow-Through
Model 225 Clean-In-Place (CIP)
Model 226 Submersion/Insertion
Model 228 Submersion/Insertion/Retractable
Model 242 Flow-Through*

** Model 242-06 or 242-08 with 5081T do not have Intrinsically Safe approvals.*

RECOMMENDED RANGES FOR TOROIDAL SENSORS						
Conductivity Sensor Model Number	**226**	**228**	**225**	**222 (1in.)**	**222 (2 in.)**	**242**
Nominal Cell Constant	**1.0**	**3.0**	**3.0**	**6.0**	**4.0**	*
Minimum Conductivity (µS/cm)	**50**	**200**	**200**	**500**	**500**	**100***
Maximum Conductivity (µS/cm)	**1,000,000**	**2,000,000**	**2,000,000**	**2,000,000**	**2,000,000**	**2,000,000***

* Model 242 values depend on sensor configuration and wiring.

NOTE: Values shown are for 25°C conductivity with a temperature slope of 2% per degree C. The maximum range value will be lower for solutions with a higher temperature slope. Minimum conductivity depends on sensor.

TRANSMITTER DISPLAY DURING CALIBRATION AND PROGRAMMING (FIGURE 1)

1. Continuous display of conductivity, % concentration, or custom reading.
2. Units: µS/cm, mS/cm, ppm, %, or none.
3. Current menu appears here.
4. Submenus, prompts, and diagnostic readings appear hear.
5. Commands available in each submenu or at each prompt appear here.
6. Hold appears when the transmitter is in hold.
7. Fault appears when the transmitter detects a sensor or instrument fault.

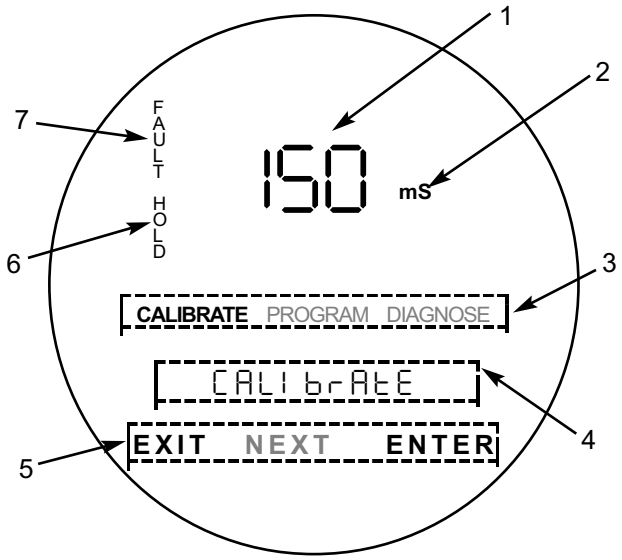


FIGURE 1. TRANSMITTER DISPLAY DURING CALIBRATION AND PROGRAMMING

The program display screen allows access to calibration and programming menus.

INFRARED REMOTE CONTROLLER (FIGURE 2)

1. Pressing a menu key allows the user access to calibrate, program, or diagnostic menus.
2. Press ENTER to store data and settings. Press NEXT to move from one submenu to the next. Press EXIT to leave without storing changes.
3. Use the editing keys to scroll through lists of allowed settings or to change a numerical setting to the desired value.
4. Pressing HOLD puts the transmitter in hold. Pressing RESET causes the transmitter to abandon the present operation and return to the main display.

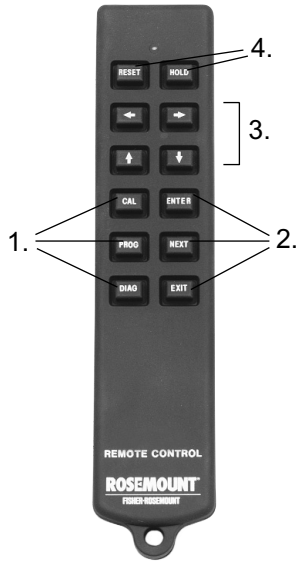


FIGURE 2. INFRARED REMOTE CONTROLLER

IRC - INFRARED REMOTE CONTROL

REMOTE CONTROL LR 34186 Exia

INTRINSICALLY SAFE EQUIPMENT
HAZARDOUS AREA LOCATIONS:
CLASS I, DIV 1, GP A, B, C, D
CLASS I, DIV 2, GP A, B, C, D
T3C Tamb = 40°C T3 Tamb = 80°C
1.5Vdc AAA BATTERIES
EVEREADY E92/1212
DURACELL MN2400/PC2400

SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY

PN 23572-00

WARNING:
TO PREVENT IGNITION CHANGE BATTERIES IN A NONHAZARDOUS AREA ONLY

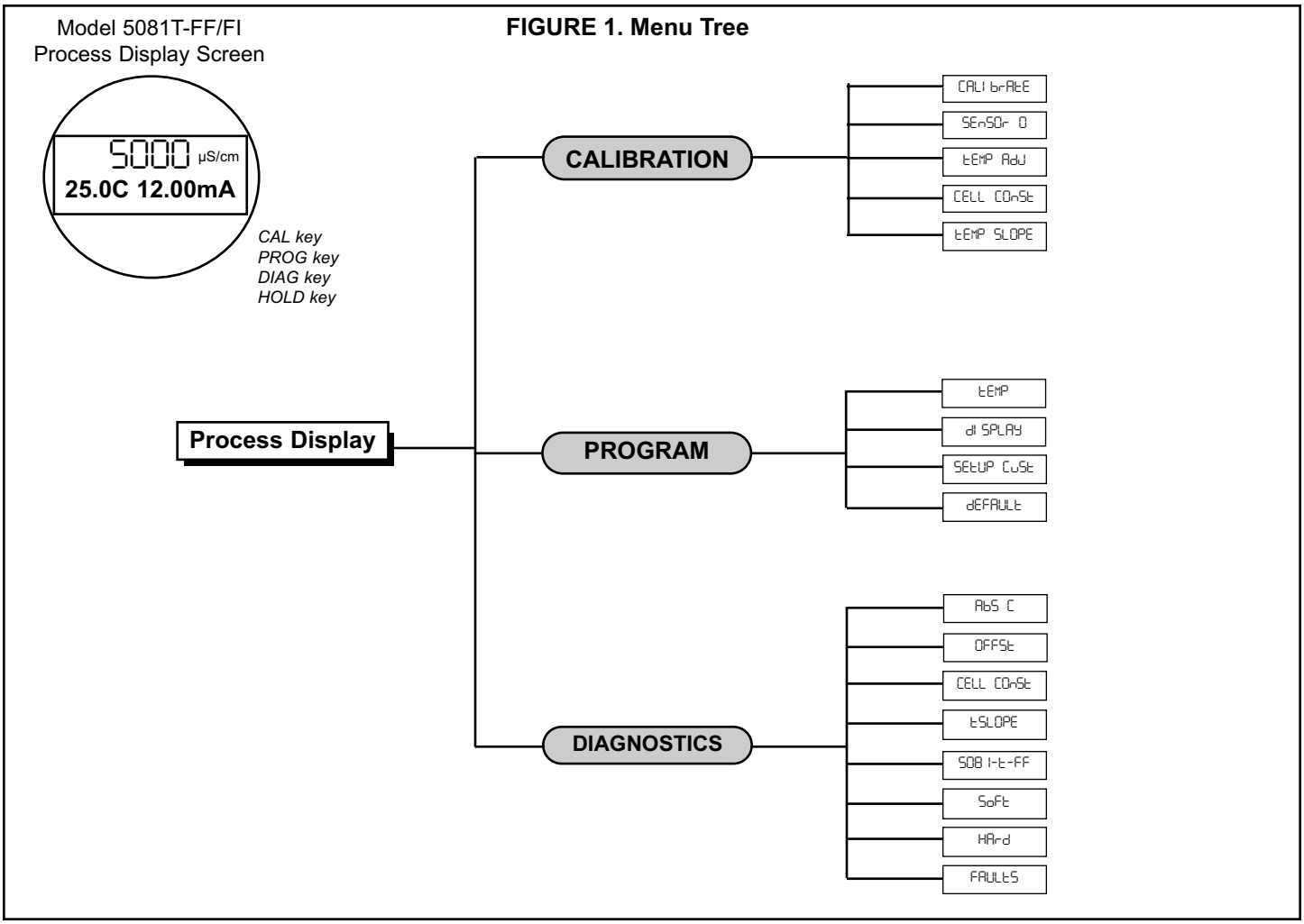
IS/I/1/A,B,C & D
NI/I/2/A,B,C & D
T4 Tamb = 40°C
T3A Tamb = 80°C

FM APPROVED

Baseefa02ATEX0198
II 1G EExia IIC T4 CE 1180
1.5Vdc AAA BATTERIES
EVEREADY E92/1212
DURACELL MN2400/PC2400
ROSEMOUNT ANALYTICAL 92606 USA

YEAR

MODEL 5081T-FF/FI MENU TREE



PROGRAM MENU MNEMONICS

HoLd	Transmitter on hold
FAULt	Fault condition current output setting
tEMP	Temperature menu header
tAUtO	Automatic temperature compensation
tMAn	Manual temperature compensation input
dI SPLAY	Display menu header
tYP	Conductivity measurement type
tEMP	°C / °F toggle selection
COdE	Security code
OFFSt	Conductance Offset value

MODEL 5081T-FF/FI DEFAULT SETTINGS

VARIABLE NAME	MNEMONIC	FACTORY SETTINGS	CUSTOMER SETTINGS
Program Menu			
Temperature	tEMP		
Auto temperature compensation	tAutO	on	_____
Manual temperature	tMAn	25.0°C (overridden by auto)	_____
Temperature compensation algorithm	COMP (LInEAr or nOnE)	LInEAr	_____
Display	diSPLAY		
Measurement type	tYP (CondUC or nAOH or HCL or H2SO4L or H2SO4H or CuSt)	CondUC	_____
Temperature (°C or °F)	tEMP	C	_____
Output (mA or %)	outPut	Cur	_____
Security Code	codE	000	_____
Custom Curve	SEtUP CuSt		_____
Reference temperature	t rEF	25.0°C	_____
Calibrate Menu			
Cell constant	CELL ConSt	3.00	_____
Temperature slope	tEMP SLOPE	2.000	_____
Diagnose Menu			
Diagnose		**SAMPLE READINGS**	
(Each segment displays the current value in the transmitter.)			
Absolute conductivity	AbS	1000 µS	_____
Off Set	OFFSt	0.0 µS	_____
Cell constant	CELL COnSt	3.00/cm	_____
Temperature slope	tSLoPE	2.000	_____
Software version	SoFt	A02.09	_____
Hardware version	HArd	01	_____
Show fault warnings	FAULtS	none	_____

WIRING

Wire sensor as shown below in Figure 2. Keep sensor wiring separate from power wiring. For best EMI/RFI protection, use shielded output signal cable in an earth-grounded metal conduit. Refer to the sensor instruction manual for more details.

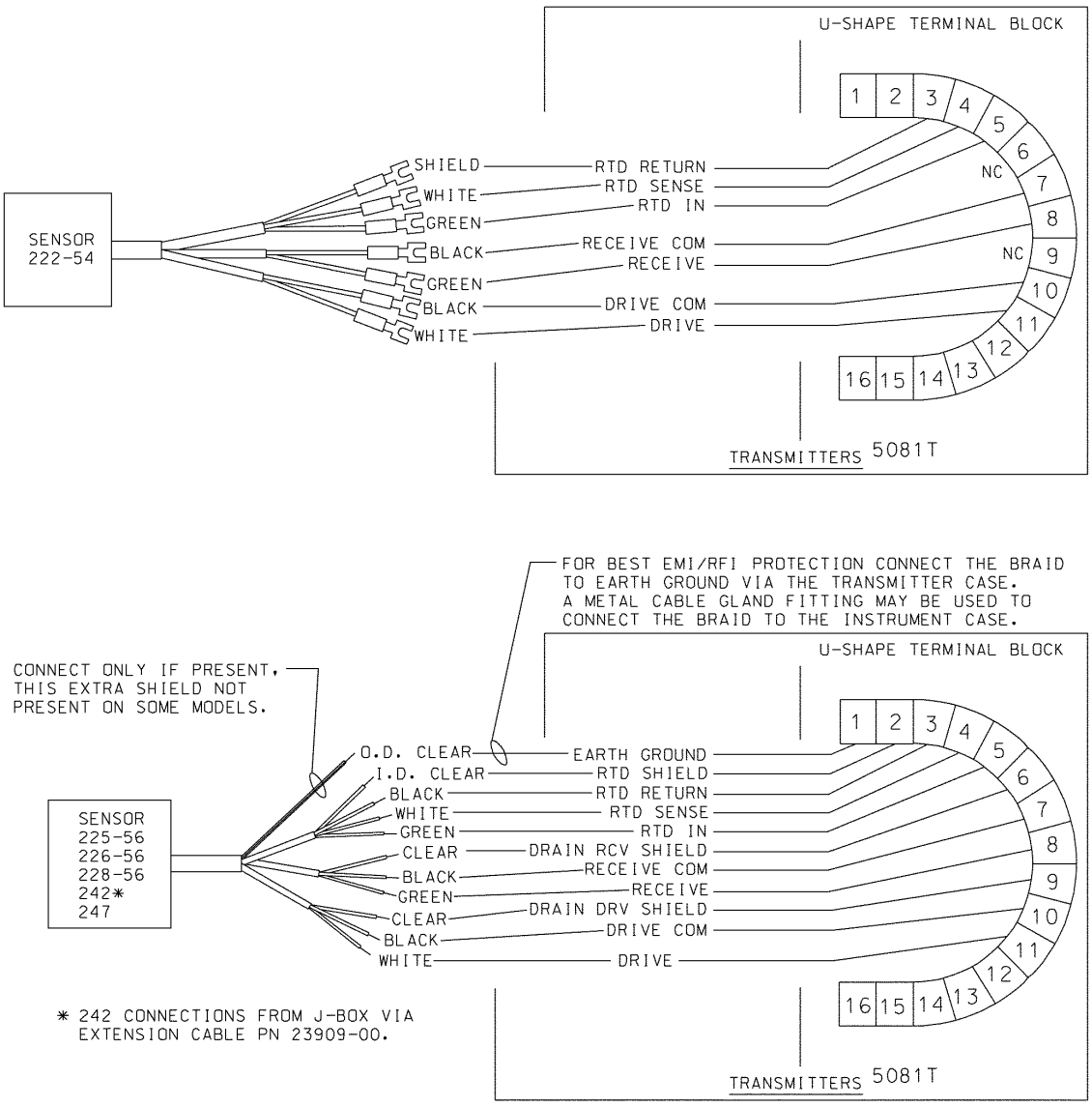


FIGURE 2. Wiring Model 5081T-FF/FI

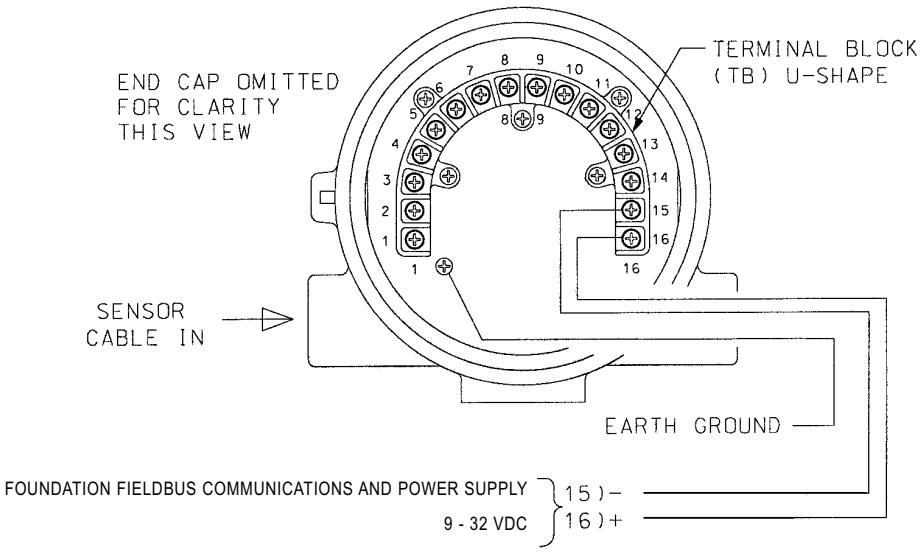


FIGURE 3. Power Supply/Current Loop Wiring for Model 5081T-FF/FI

WIRING THROUGH A JUNCTION BOX

The sensor can be wired to the analyzer through a remote junction box (PN 23550-00). Wire the extension cable and sensor cable point-to-point. Refer to the sensor instruction manual for more details.

Factory-terminated (PN 23747-00) and unterminated (PN 9200275) connecting cable are available. The use of factory-terminated cable is strongly recommended. To prepare unterminated cable for use, follow the instructions in the sensor instruction manual.

For maximum EMI/RFI protection, the outer braid of the sensor cable should be connected to the outer braided shield of the extension cable. At the instrument, connect the outer braid of the extension cable to earth ground.

POWER WIRING

For general purpose areas, wire power as shown in Figure 3.

INSTALLATION

UNPACKING AND INSPECTION

Inspect the shipping container. If it is damaged, contact the shipper immediately for instructions. Save the box. If there is no apparent damage, unpack the container. Be sure all items shown on the packing list are present. If items are missing, notify Rosemount Analytical immediately.

ROTATING THE DISPLAY

The Model 5081T-FF/F1 display can be rotated 90° left or right. Disengage the cover lock and remove the front cover. Remove the three screws holding the PCB stack and gently lift the display board. Do not disengage the ribbon cable between the display board and the CPU board. Rotate the display. The black infrared sensor will be at the top of the display.

INSTALLATION

See Figure 4.

1. Although the analyzer is suitable for outdoor use, do not install it in direct sunlight or in areas of extreme temperatures.
2. Install the analyzer in an area where vibrations and electromagnetic and radio frequency interference are minimized or absent.
3. Keep the analyzer and sensor wiring at least one foot from high voltage conductors. Be sure there is easy access to the analyzer.
4. The conduit connections on the sides of the 5081 housing should be sealed to prevent moisture from entering the enclosure.
5. The transmitter must not be mounted with both conduit openings at the top.

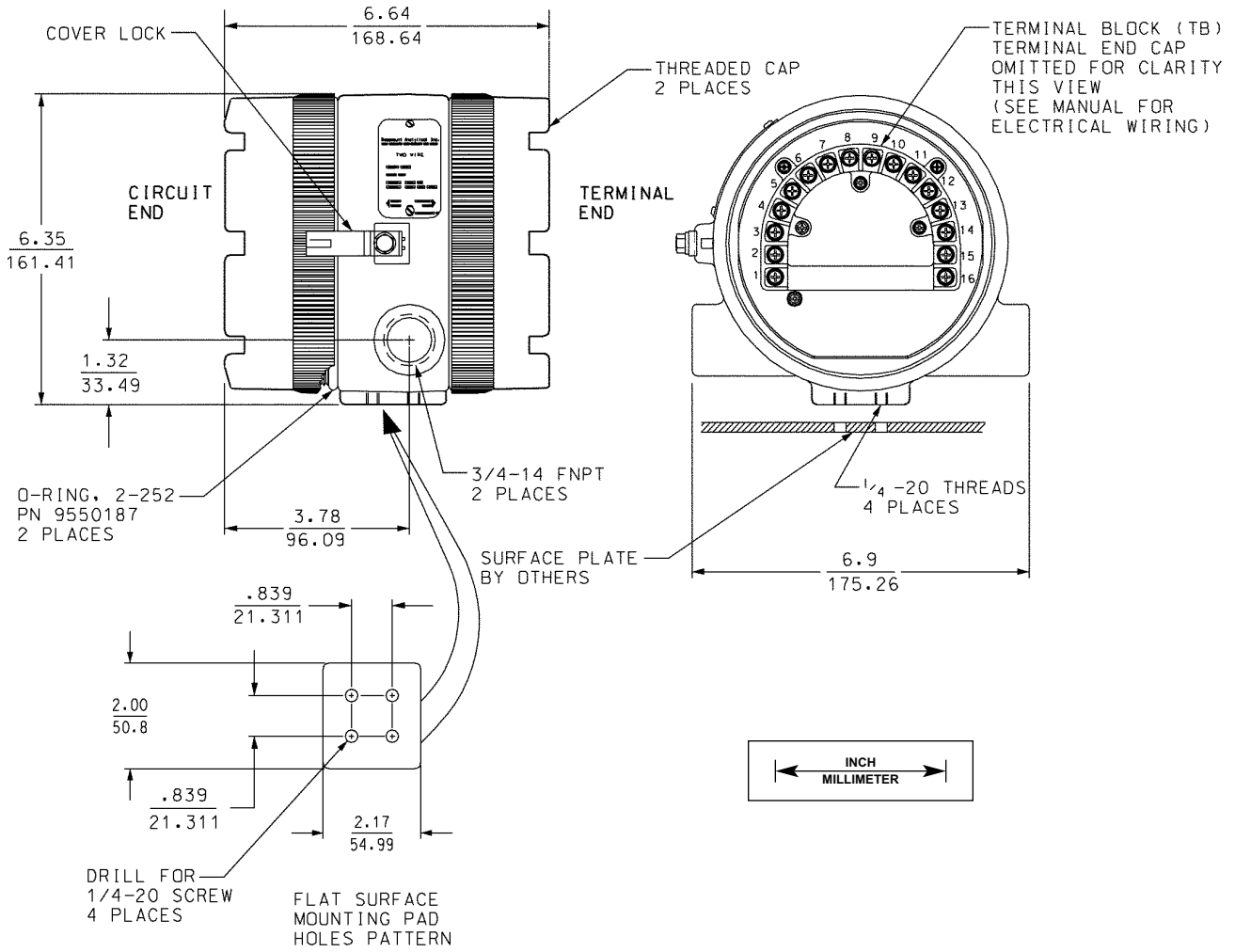


FIGURE 4. Mounting Model 5081T-FF/FI

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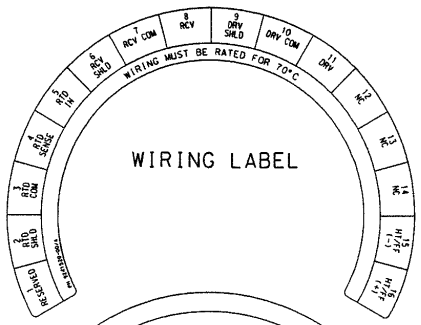
REVISION					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

D1400218

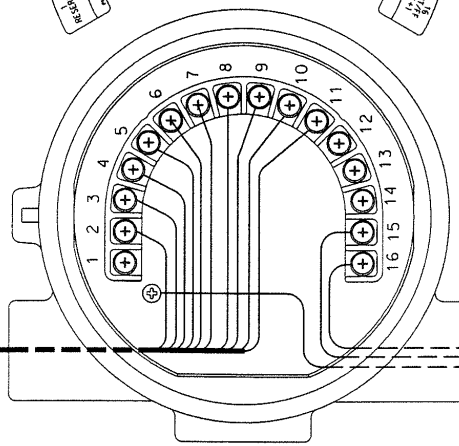
RECOMMENDED SENSORS:
222
225
226
228
242

WIRING LABEL



SAFE AREA

SAFE AREA



△3 RIGID METAL CONDUIT AND APPROVED SEALS

TOROIDAL SENSOR

△3 RIGID METAL CONDUIT AND APPROVED SEALS

POWER SUPPLY
32 VDC MAX

5081-T-FF-67

HAZARDOUS AREA

CLASS I, DIV 1, GPS B-D
CLASS II, DIV 1, GPS E-G
CLASS III, DIV 1
70°C MAX

△3 USE ONLY APPROVED CONDUIT SEALS AND FITTINGS.

2. SEAL REQUIRED AT EACH CONDUIT ENTRANCE.

1. INSTALLATION MUST CONFORM TO THE NEC.

NOTES: UNLESS OTHERWISE SPECIFIED

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UNLESS OTHERWISE SPECIFIED TOLERANCES
.XX ±.030 .XXX ±.010 ANGLES ±½°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125
MATERIAL
FINISH

ITEM	PART NO.	DESCRIPTION	QTY
		BILL OF MATERIAL	

APPROVALS		DATE
DRAWN	N.K.	05/07/02
CHECKED	J. FLOCK	05/07/02
PROJECT ENGR APVD	J. FLOCK	05/07/02

Emerson Process Management
Rosemount Analytical Division
2400 Barranca Parkway
Irvine, CA 92606

TITLE: SCHEM, SYSTEM FMRC
EXP PROOF 5081-T-FF

THIS DWG PRODUCED ON MICROSTATION PC:
FILENAME: 004306

SIZE D | DWG NO. 1400218 | REV B

SCALE NONE | TYPE | SHEET 1 OF 1

07-30-02		B
RELEASE DATE	ECO NO.	REV

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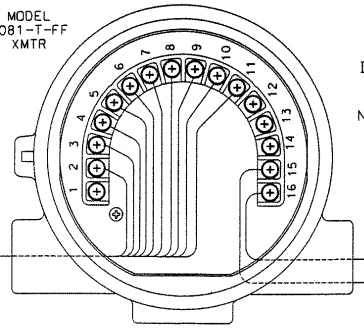

APPROVED CONDUCTIVITY SENSORS
222.225.226 & 228
242 (1" & 2" ONLY)

INFRARED REMOTE CONTROL UNIT (RMT PN 23572-00) FOR USE IN CLASS I AREA ONLY

12

HAZARDOUS AREA

IS CLASS I, II, III,
DIVISION 1,
GROUPS A, B, C, D, E, F, G;
NI CLASS I,
DIVISION 2,
GROUPS A,B,C,D;
SUITABLE CLASS II,
DIVISION 2,
GROUPS F & G;
SUITABLE CLASS III,
DIVISION 2

UNCLASSIFIED AREA

SAFETY BARRIER (SEE NOTES 1 & 6)

UNSPECIFIED POWER SUPPLY 30 VDC MAX

12 MAXIMUM SENSOR CABLE LENGTH IS 250 FEET.

11. USE SUPPLY WIRES SUITABLE FOR 5°C ABOVE SURROUNDING AMBIENT.

10. NO REVISION TO DRAWING WITHOUT PRIOR FM APPROVAL.

9. THE ASSOCIATED APPARATUS MUST BE FM APPROVED.

8. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

7. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

6. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE INPUT		ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	≥	Voc, Vt OR Uo;
Imax OR Ii	≥	Isc, It OR Io;
Pmax OR Pi	≥	Po;
Ci + Ccable;	≥	Ca, Ct OR Co
Li + Lcable.	≤	La, Lt OR Lo

5. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.

4. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

3. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA RP12.06.01 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70).

2. INTRINSICALLY SAFE APPARATUS (MODEL 5081-T-FF, FIELDBUS TERMINATOR AND ANY ADDITIONAL FIELDBUS DEVICES) AND ASSOCIATED APPARATUS (SAFETY BARRIER) SHALL MEET THE FOLLOWING REQUIREMENTS: THE VOLTAGE (Vmax) AND CURRENT (Imax) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (Voc OR Vt) AND CURRENT (Isc OR It) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS (SAFETY BARRIER). IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) OF THE INTRINSICALLY SAFE APPARATUS, INCLUDING INTERCONNECTING WIRING, MUST BE EQUAL OR LESS THAN THE CAPACITANCE (Ca) AND INDUCTANCE (La) WHICH CAN BE SAFELY CONNECTED TO THE APPARATUS. (REF. TABLE I).

1. ANY SINGLE SHUNT ZENER DIODE SAFETY BARRIER APPROVED BY FM HAVING THE FOLLOWING OUTPUT PARAMETERS:
SUPPLY/SIGNAL TERMINALS TB1-15, 16

Voc OR Vt NOT GREATER THAN 30 V
Isc OR It NOT GREATER THAN 300 mA
Pmax NOT GREATER THAN 1.3 W

NOTES: UNLESS OTHERWISE SPECIFIED

WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.

WARNING – TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

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_____ REV.___
_____ REV.___
_____ REV.___
_____ REV.___
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TABLE I

5081-T-FF ENTITY PARAMETERS SUPPLY / SIGNAL TERMINALS TB 1-15, 16					
MODEL NO.	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (nF)	Li (mH)
5081-T-FF	30	300	1.3	27.8	0

UNLESS OTHERWISE SPECIFIED TOLERANCES
.XX ±.030 ANGLES ±½°
.XXX ±.010
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125
MATERIAL
FINISH

ITEM	PART NO.	DESCRIPTION	QTY
BILL OF MATERIAL			

APPROVALS		DATE
DRAWN	N. KOUMBIS	04/17/02
CHECKED	J. FLOCK	04/18/03
PROJECT ENGR APVD	J. FLOCK	04/18/03

THIS DWG PRODUCED ON MICROSTATION PC; FILENAME: 004160

Uniloc — Rosemount Analytical, Uniloc Division, 2400 Barranca Pkwy, Irvine, CA 92606

TITLE: SCHEMATIC, INSTALLATION 5081-T-FF XMTR FM APPROVALS

RELEASE DATE	ECO NO.	REV
7-30-03		A

SIZE	DWG NO.	REV
D	1400208	A

SCALE NONE | TYPE | SHEET 1 OF 1

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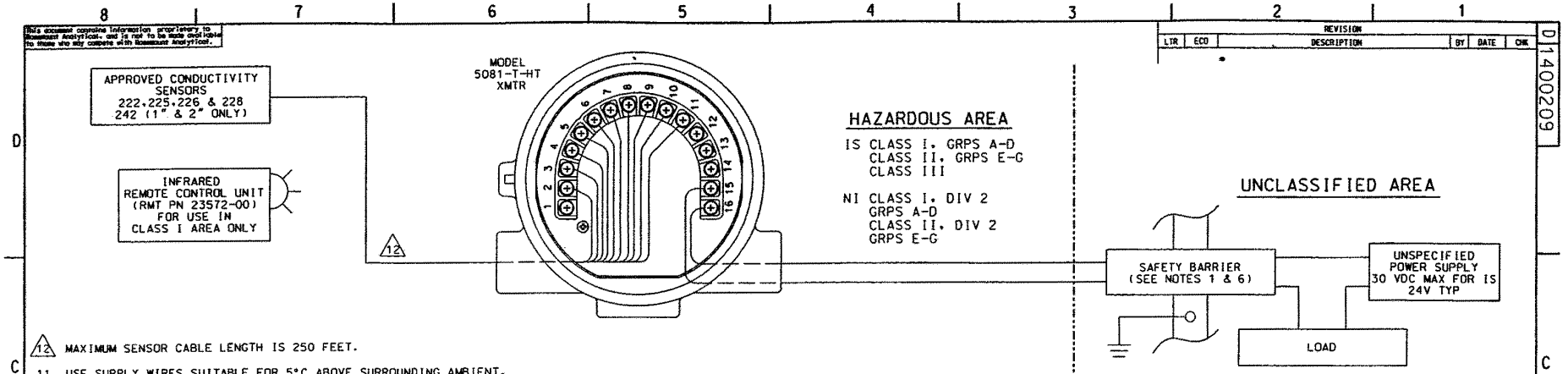

12. MAXIMUM SENSOR CABLE LENGTH IS 250 FEET.

11. USE SUPPLY WIRES SUITABLE FOR 5°C ABOVE SURROUNDING AMBIENT.

10. NO REVISION TO DRAWING WITHOUT PRIOR CSA APPROVAL.

9. THE ASSOCIATED APPARATUS MUST BE CSA APPROVED.

8. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

7. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

6. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE INPUT		ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	≥	Voc, Vt OR Uo:
Imax OR Ii	≥	Isc, It OR Io:
Pmax OR Pi	≥	Po:
Ci+ Ccable:	≥	Ca, Ct OR Co
Li+ Lcable.	≥	La, Lt OR Lo

5. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.

4. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

3. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA RP12.06.01 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE CANADIAN ELECTRICAL CODE (CSA C22.1).

2. INTRINSICALLY SAFE APPARATUS (MODEL 5081-T-HT, IRC TRANSMITTER) AND ASSOCIATED APPARATUS (SAFETY BARRIER) SHALL MEET THE FOLLOWING REQUIREMENTS: THE VOLTAGE (Vmax) AND CURRENT (Imax) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (Voc OR Vt) AND CURRENT (Isc OR It) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS (SAFETY BARRIER). IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) OF THE INTRINSICALLY SAFE APPARATUS, INCLUDING INTERCONNECTING WIRING, MUST BE EQUAL OR LESS THAN THE CAPACITANCE (Ca) AND INDUCTANCE (La) WHICH CAN BE SAFELY CONNECTED TO THE APPARATUS. (REF. TABLE 1).

1. ANY SINGLE SHUNT ZENER DIODE SAFETY BARRIER APPROVED BY CSA HAVING THE FOLLOWING OUTPUT PARAMETERS:
SUPPLY/SIGNAL TERMINALS TB1-15, 16

Voc OR Vt NOT GREATER THAN 30 V
Isc OR It NOT GREATER THAN 200 mA
Pmax NOT GREATER THAN 0.9 W

NOTES: UNLESS OTHERWISE SPECIFIED

WARNING— SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.

WARNING— TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

TABLE I

5081-T-HT ENTITY PARAMETERS
SUPPLY / SIGNAL TERMINALS TB 1-15, 16

MODEL NO.	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (nF)	Li (mH)
5081-T-HT	30	200	0.9	27.8	0

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CSA REV. A
REV.
REV.
REV.
REV.
REV.
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL

ITEM	PART NO.	DESCRIPTION	QTY
		BILL OF MATERIAL	

APPROVALS		DATE
DRAWN	N. KOUMBIS	04/11/03
CHECKED	J. FLOCK	04/18/03
PROJECT ENGR APVD	J. FLOCK	04/18/03

UNLESS OTHERWISE SPECIFIED TOLERANCES
.XX ±.010 ANGLES ±½°
.XXX ±.005
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .005 MAX
MACHINED FILLET RADII .005 MAX
NOMINAL SURFACE FINISH 125
MATERIAL
FINISH

THIS DWG PRODUCED ON MICROSTATION PC; FILENAME: 004161

Uniloc — Rosemount Analytical, Uniloc Division, Irvine, California

TITLE: SCHEMATIC, INSTALLATION 5081-T-HT XMTR CSA

SIZE	DWG NO.	REV
D	1400209	A

SCALE: NONE TYPE SHEET 1 OF 1

RELEASE DATE	ECO NO.	REV
8-12-03	8643	A

Rosemount Analytical Uniloc Division

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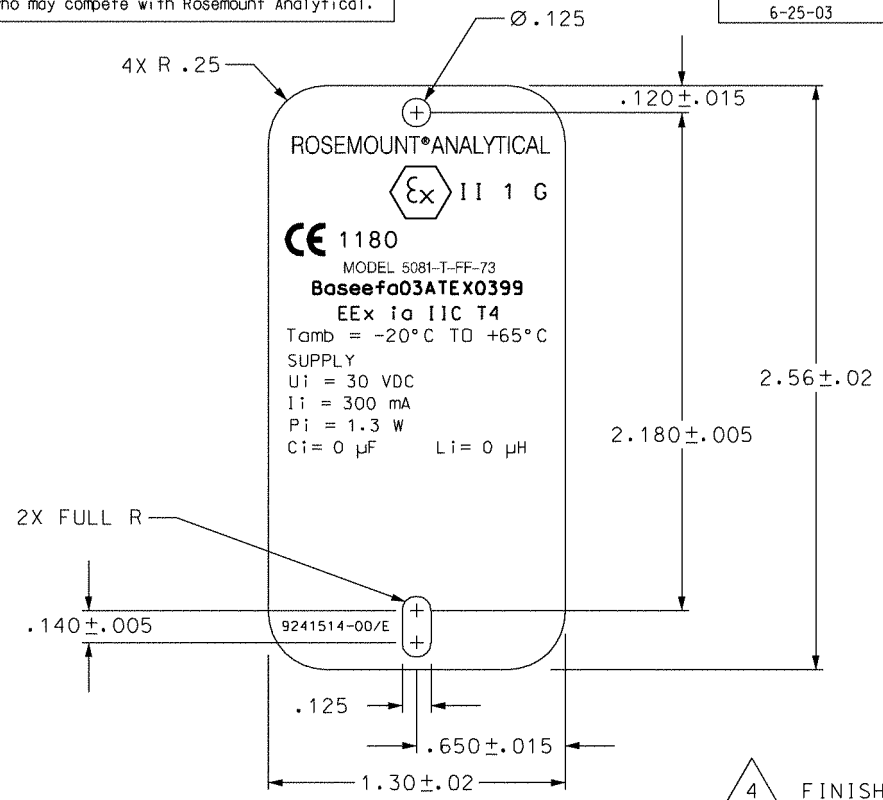
RELEASE DATE	ECO NO	REV
6-25-03	8554	E

REVISIONS					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

B 9241514-00



Baseefa Certified Product
No modifications permitted without the approval of the Authorized Person
Related Drawing

4 FINISH:SILKSCREEN BLACK EPOXY PAINT (BAKED).

3. ARTWORK IS SHEET 2 OF 2.

2. NO CHANGE WITHOUT BASEEFA APPROVAL.

1 MATERIAL: AISI 300 SERIES STAINLESS STEEL .015+/-.005 THICK. MATERIAL TO BE ANNEALED & PASSIVATED. MAXIMUM HARDNESS BRINELL 190.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
TOLERANCES
.XX ±.030
.XXX ±.010
ANGLES ±½°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125

MATERIAL 1

FINISH 4

ITEM	PART NO	DESCRIPTION	QTY

BILL OF MATERIAL

APPROVALS		DATE
DRAWN	B. JOHNSON	5/14/02
CHECKED	J. FLOCK	5/21/02
PROJECT ENGR APVD	J. FLOCK	5/21/02

THIS DWG PRODUCED ON MICROSTATION PC:
FILENAME: 004104

Uniloc

TITLE LABEL, I.S. BAS/ATEX 5081-T-FF

B SIZE | DWG NO 9241514-00 | REV E

SCALE 2:1 | SHEET 1 OF 2

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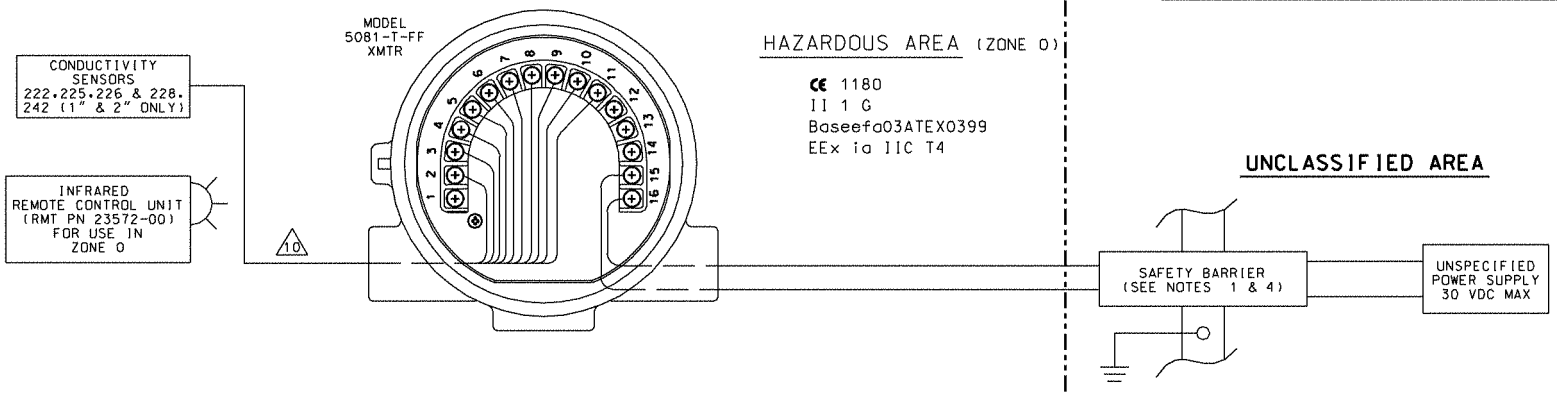
REVISION					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

D 1400226



10 MAXIMUM SENSOR CABLE LENGTH IS 250 FEET.

9. PROCESS RESISTIVITY MUST BE LESS THAN 10^9 OHMS.

8. USE SUPPLY WIRES SUITABLE FOR 5°C ABOVE SURROUNDING AMBIENT.

7. ANY ASSOCIATED APPARATUS MUST BE ATEX APPROVED.

6. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

5. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

4. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE (INPUT		ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	≥	Voc, Vt OR Uo:
Imax OR Ii	≥	Isc, It OR Io:
Pmax OR Pi	≥	Po:
Ci+ Ccable:	≥	Ca, Ct OR Co
Li+ Lcable.	≥	La, Lt OR Lo

3. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.

2. INTRINSICALLY SAFE APPARATUS (MODEL 5081-T-FF, FIELDBUS TERMINATOR AND ANY ADDITIONAL FIELDBUS DEVICES) AND ASSOCIATED APPARATUS (SAFETY BARRIER) SHALL MEET THE FOLLOWING REQUIREMENTS: THE VOLTAGE (Vmax) AND CURRENT (Imax) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (Voc OR Vt) AND CURRENT (Isc OR It) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS (SAFETY BARRIER). IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) OF THE INTRINSICALLY SAFE APPARATUS, INCLUDING INTERCONNECTING WIRING, MUST BE EQUAL OR LESS THAN THE CAPACITANCE (Ca) AND INDUCTANCE (La) WHICH CAN BE SAFELY CONNECTED TO THE APPARATUS. (REF. TABLE I).

1. ANY SHUNT ZENER DIODE SAFETY BARRIER HAVING ATEX APPROVAL AND THE FOLLOWING OUTPUT PARAMETERS:
SUPPLY/SIGNAL TERMINALS TB1 15 AND 16

Voc OR Vt NOT GREATER THAN 30 V
Isc OR It NOT GREATER THAN 300 mA
Pmax NOT GREATER THAN 1.3 W

NOTES: UNLESS OTHERWISE SPECIFIED

WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

TABLE I

5081-T-FF ENTITY PARAMETERS SUPPLY / SIGNAL TERMINALS TB1 15 AND 16					
MODEL NO.	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (uF)	Li (uH)
5081-T-FF	30	300	1.3	0	0

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No modifications permitted without the approval of the Authorized Person
Related Drawing

RELEASE DATE	ECO NO.	REV
6-20-03	8554	B

UNLESS OTHERWISE SPECIFIED TOLERANCES
.XX ±.030 .XXX ±.010 ANGLES ±½°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .005 MAX
MACHINED FILLETS R.031 -.020 MAX
NOMINAL SURFACE FINISH 125
MATERIAL
FINISH

ITEM	PART NO.	DESCRIPTION	QTY
BILL OF MATERIAL			

APPROVALS		DATE
DRAWN	C. SANCHEZ	11/25/02
CHECKED	J. FLOCK	04/10/03
PROJECT ENGR APVD	J. FLOCK	04/10/03

THIS DWG PRODUCED ON MICROSTATION PC;
FILENAME: 004426

Uniloc
Rosemount Analytical, Uniloc Division, 2400 Barranca Pkwy, Irvine, CA 92606

TITLE
SCHEMATIC, INSTALLATION
5081-T-FF XMTR
ATEX ZONE 0

SIZE	DWG NO.	REV
D	1400226	B

SCALE NONE | TYPE | SHEET 1 OF 1

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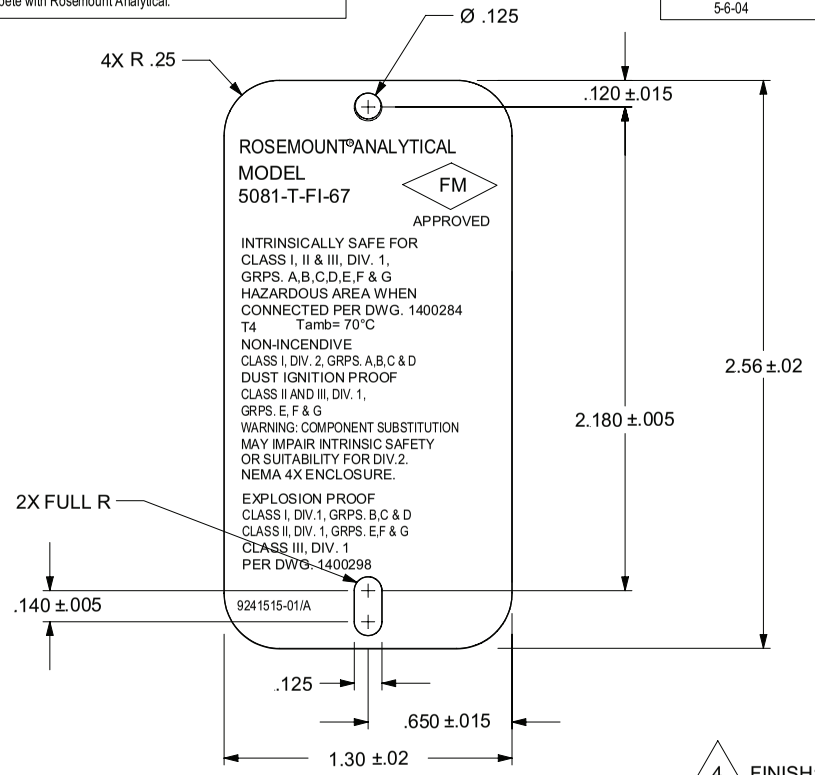
RELEASE DATE	ECO NO	REV
5-6-04	8933	A

REVISIONS					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

B 9241515-01



4 FINISH:SILKSCREEN BLACK EPOXY PAINT (BAKED).

THIS DOCUMENT IS CERTIFIED BY
FM REV A
REV
REV
REV
REV
REV
REV
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL

3. ARTWORK IS SHEET 2 OF 2.

2. NO CHANGE WITHOUT FM APPROVAL.

1 MATERIAL: AISI 300 SERIES STAINLESS STEEL .015+/-.005 THICK. MATERIAL TO BE ANNEALED & PASSIVATED. MAXIMUM HARDNESS BRINELL 190.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
TOLERANCES
.XX ± .030
.XXX ± .010
ANGLES ± 1/2°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125

MATERIAL 1

FINISH 4

ITEM	PART NO	DESCRIPTION	QTY

BILL OF MATERIAL

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

THIS DWG CREATED IN SOLID EDGE

Uniloc

TITLE
LABEL, I.S. FM
5081-T-FI

B SIZE	DWG NO 9241515-01	REV A
SCALE 2:1		SHEET 1 OF 2

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REVISION					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

1400298

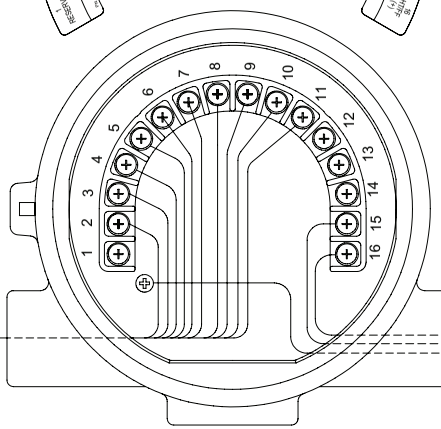
RECOMMENDED SENSORS:
222
225
226
228
242

WIRING LABEL

WIRING MUST BE RATED FOR 70° C

SAFE AREA

SAFE AREA



△3 RIGID METAL CONDUIT AND APPROVED SEALS

TOROIDAL SENSOR

△3 RIGID METAL CONDUIT AND APPROVED SEALS

POWER SUPPLY
17.5 VDC MAX

5081-T-FI-67

HAZARDOUS AREA

CLASS I, DIV 1, GPS B-D
CLASS II, DIV 1, GPS E-G
CLASS III, DIV 1
70°C MAX

△3 USE ONLY APPROVED CONDUIT SEALS AND FITTINGS.

2. SEAL REQUIRED AT EACH CONDUIT ENTRANCE.

1. INSTALLATION MUST CONFORM TO THE NEC.

NOTES: UNLESS OTHERWISE SPECIFIED

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REV.
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REVISIONS NOT PERMITTED W/O AGENCY APPROVAL

ITEM	PART NO.	DESCRIPTION	QTY
		BILL OF MATERIAL	

UNLESS OTHERWISE SPECIFIED
TOLERANCES
XX ± .03 ANGLES ± 1°
XXX ± .010
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .02 MAX.
MACHINED FILLET RADII .02 MAX.
NOMINAL SURFACE FINISH 125

MATERIAL

FINISH

THIS DWG CREATED IN SOLID EDGE

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

Emerson
Emerson Process Management
Rosemount Analytical Division
2400 Barranca Pkwy
Irvine, CA 92606

TITLE
SCHEM, SYSTEM FMRC
EXP PROOF 5081-T-FI

SIZE	DWG NO.	REV
D	1400298	A

SCALE NONE TYPE SHEET 1 OF 1

RELEASE DATE	ECO NO.	REV
5-6-04	8933	A

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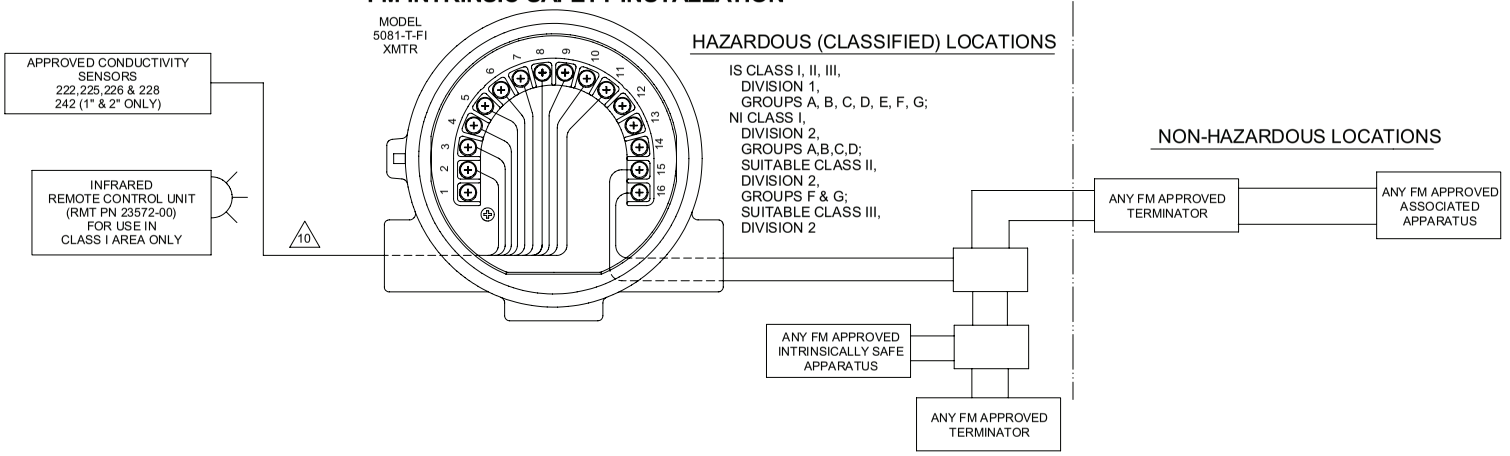
REVISION					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

FISCO
FM INTRINSIC SAFETY INSTALLATION



WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.

WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

THIS DOCUMENT IS CERTIFIED BY
FM REV. B
REV.
REV.
REV.
REV.
REV.
REV.
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL

10 MAXIMUM SENSOR CABLE LENGTH IS 250 FEET.

9. USE SUPPLY WIRES SUITABLE FOR 5°C ABOVE SURROUNDING AMBIENT.

8. NO REVISION TO DRAWING WITHOUT PRIOR FACTORY MUTUAL RESEARCH APPROVAL.

7. THE CONFIGURATION OF ASSOCIATED APPARATUS MUST BE FACTORY MUTUAL RESEARCH APPROVED UNDER THE ASSOCIATED CONCEPT.

6. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

5. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

4. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE INPUT		ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	≥	Voc, Vt OR Uo;
Imax OR Ii	≥	Isc, It OR Io;
Pmax OR Pi	≥	Po;
3Ci+ 3Ccable;	≥	Ca, Ct OR Co
3Li + 3Lcable.	≤	La, Lt OR Lo; OR Lc/Rc ≤ (La/Ra OR Lo/Ro) AND Li/Ri≤ (La/Ra OR Lo/Ro)

3. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.

2. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

1. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA RP12.06 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" (EXCEPT CHAPTER 5 FOR FISCO INSTALLATIONS) AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) SECTIONS 504 AND 505.

NOTES: UNLESS OTHERWISE SPECIFIED

TABLE I

5081-T-FI FISCO PARAMETERS SUPPLY / SIGNAL TERMINALS TB 1-15, 16						
MODEL NO.	GROUPS	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (nF)	Li (uH)
5081-T-FI	IIB/ C,D,E,F,G	17.5	380	5.32	5	10
5081-T-FI	IIC/ A,B,C,D,E,F,G	17.5	360	2.52	5	10

UNLESS OTHERWISE SPECIFIED TOLERANCES
XX ± .030 ANGLES ± 1°
XXX ± .010
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125
MATERIAL
FINISH

ITEM	PART NO.	DESCRIPTION	QTY
		BILL OF MATERIAL	

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

THIS DWG CREATED IN SOLID EDGE

Uniloc — Rosemount Analytical, Uniloc Division, 2400 Barranca Pkwy, Irvine, CA 92606

TITLE: SCHEMATIC, INSTALLATION 5081-T-FI XMTR FM APPROVALS

5-6-04	8933	B
RELEASE DATE	ECO NO.	REV

SIZE D | DWG NO. 1400284 | REV B | SCALE NONE | TYPE | SHEET 1 OF 1

1400284

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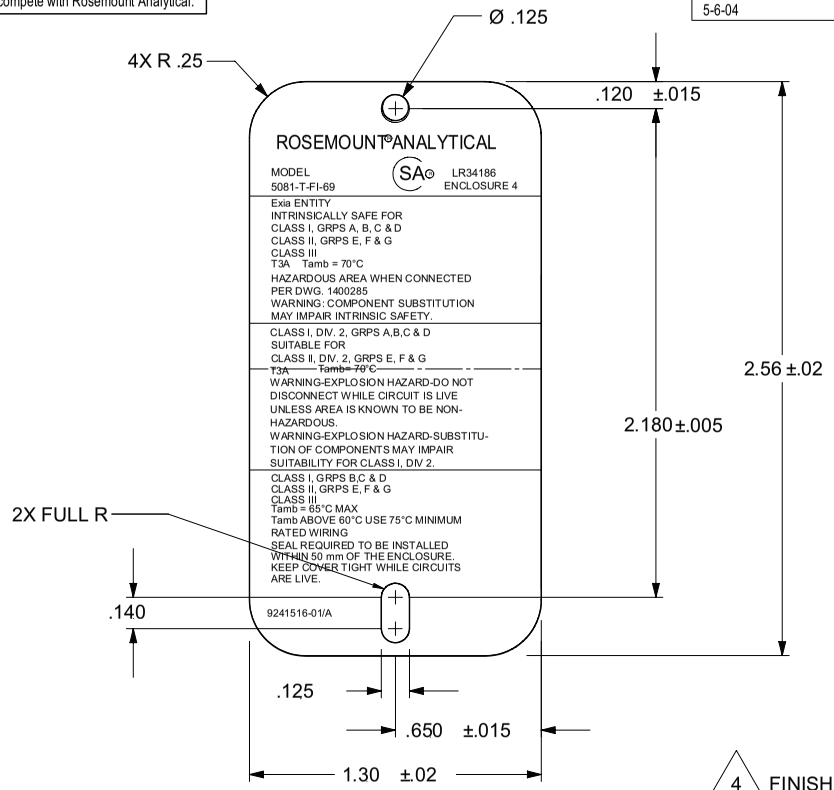
RELEASE DATE	ECO NO	REV
5-6-04	8925	A

REVISIONS					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

B 9241516-01



4 FINISH:SILKSCREEN BLACK EPOXY PAINT (BAKED).

THIS DOCUMENT IS CERTIFIED BY
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REV
REV
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REV
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL

3. ARTWORK IS SHEET 2 OF 2.
2. NO CHANGE WITHOUT CSA APPROVAL.
1 MATERIAL: AISI 300 SERIES STAINLESS STEEL .015+/-.005 THICK. MATERIAL TO BE ANNEALED & PASSIVATED. MAXIMUM HARDNESS BRINELL 190.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
TOLERANCES
.XX ± .030
.XXX ± .010
ANGLES ± 1/2°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125

MATERIAL 1
FINISH 4

ITEM	PART NO	DESCRIPTION	QTY

BILL OF MATERIAL

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

THIS DWG CREATED IN SOLID EDGE

Uniloc

TITLE
LABEL, I.S. CSA
5081-T-FI

B SIZE	DWG NO 9241516-01	REV A
SCALE 2:1		SHEET 1 OF 2

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REVISION					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

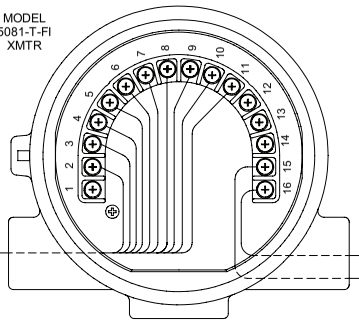
1400285

FISCO
CSA INTRINSIC SAFETY INSTALLATION

APPROVED CONDUCTIVITY SENSORS
222,225,226 & 228
242 (1" & 2" ONLY)

INFRARED REMOTE CONTROL UNIT
(RMT PN 23572-00)
FOR USE IN
CLASS I AREA ONLY

MODEL
5081-T-FI
XMTR



11

HAZARDOUS AREA

IS CLASS I, GRPS A-D
CLASS II, GRPS E-G
CLASS III

NI CLASS I, DIV 2
GRPS A-D
CLASS II, DIV 2
GRPS E-G

UNCLASSIFIED AREA

CSA APPROVED
ASSOICATED APPARATUS
SUITABLE FOR FISCO
SEE NOTE 5 AND TABLE 1

UNSPECIFIED
POWER SUPPLY
17.5 VDC MAX

WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OR SUITABILITY FOR DIVISION 2.

WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

11 MAXIMUM SENSOR CABLE LENGTH IS 250 FEET.

10. USE SUPPLY WIRES SUITABLE FOR 5 °C ABOVE SURROUNDING AMBIENT.

9. NO REVISION TO DRAWING WITHOUT PRIOR CSA APPROVAL.

8. THE ASSOCIATED APPARATUS MUST BE CSA APPROVED.

7. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

6. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.

5. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE INPUT		ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	≥	Voc, Vt OR Uo;
Imax OR Ii	≥	Isc, It OR Io;
Pmax OR Pi	≥	Po;
Ci+ Ccable;	≥	Ca, Ct OR Co
Li+ Lcable.	≤	La, Lt OR Lo

4. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.

3. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

2. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA RP12.06.01 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE CANADIAN ELECTRICAL CODE (CSA C22.1).

1. INTRINSICALLY SAFE APPARATUS (MODEL 5081-T-FI, IRC TRANSMITTER) AND ASSOCIATED APPARATUS (SAFETY BARRIER) SHALL MEET THE FOLLOWING REQUIREMENTS: THE VOLTAGE (Vmax) AND CURRENT (Imax) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (Voc OR Vt) AND CURRENT (Isc OR It) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS (SAFETY BARRIER). IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) OF THE INTRINSICALLY SAFE APPARATUS, INCLUDING INTERCONNECTING WIRING, MUST BE EQUAL OR LESS THAN THE CAPACITANCE (Ca) AND INDUCTANCE (La) WHICH CAN BE SAFELY CONNECTED TO THE APPARATUS. (REF. TABLE I).

NOTES: UNLESS OTHERWISE SPECIFIED

THIS DOCUMENT IS CERTIFIED BY
CSA _____ REV. A
_____ REV.____
_____ REV.____
_____ REV.____
_____ REV.____
_____ REV.____
REVISIONS NOT PERMITTED W/O AGENCY APPROVAL

TABLE I

5081-T-FI ENTITY PARAMETERS SUPPLY / SIGNAL TERMINALS TB 1-15, 16					
MODEL NO.	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (nF)	Li (mH)
5081-T-FI	17.5	380	5.32	27.8	0

5-6-04	8925	A
RELEASE DATE	ECO NO.	REV

UNLESS OTHERWISE SPECIFIED
TOLERANCES
XX ± .030
XXX ± .010
ANGLES ± 1°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLETRADII .020 MAX
NORMAL SURFACE FINISH 125
MATERIAL
FINISH

ITEM	PART NO.	DESCRIPTION	QTY
BILL OF MATERIAL			

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

THIS DWG CREATED IN SOLID EDGE

Uniloc
Rosemount Analytical, Uniloc Division
2400 Barranca Pkwy
Irvine, CA 92606

TITLE
SCHEMATIC, INSTALLATION
5081-T-FI XMTR CSA

SIZE	DWG NO.	REV
D	1400285	A

SCALE NONE | TYPE | SHEET 1 OF 1

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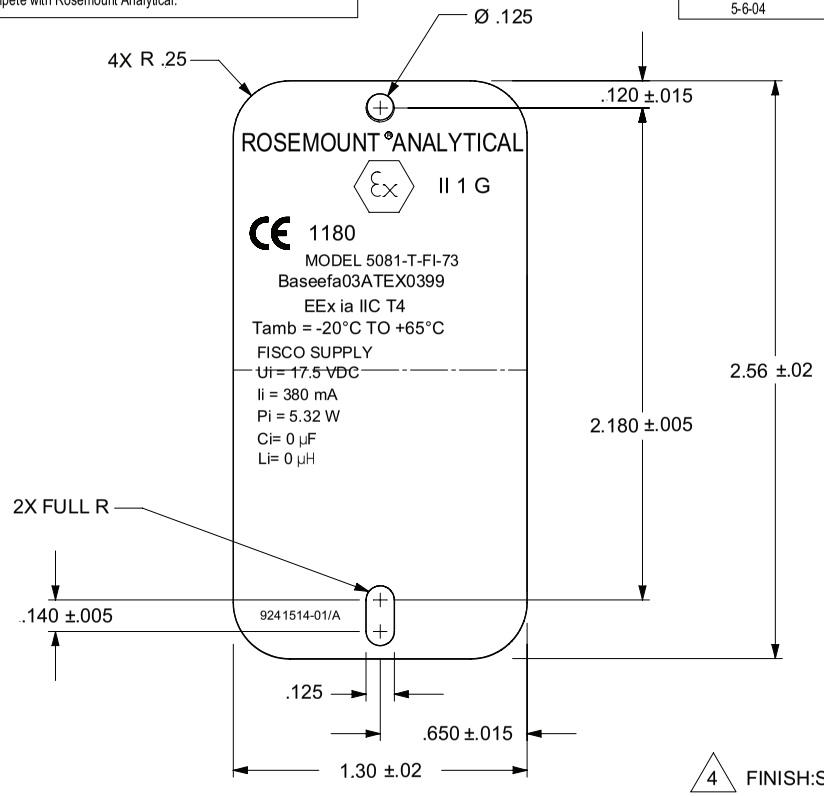
RELEASE DATE	ECO NO	REV
5-6-04	8925	A

REVISIONS					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

B 9241514-01



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No modifications permitted without the approval of the Authorized Person
Related Drawing

4 FINISH:SILKSCREEN BLACK EPOXY PAINT (BAKED).

3. ARTWORK IS SHEET 2 OF 2.

2. NO CHANGE WITHOUT BASEEFA APPROVAL.

1 MATERIAL: AISI 300 SERIES STAINLESS STEEL .015+/-.005 THICK. MATERIAL TO BE ANNEALED & PASSIVATED. MAXIMUM HARDNESS BRINELL 190.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
TOLERANCES
.XX ± .030
.XXX ± .010
ANGLES ± 1/2°
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125

MATERIAL 1

FINISH 4

ITEM	PART NO	DESCRIPTION	QTY

BILL OF MATERIAL

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

THIS DWG CREATED IN SOLID EDGE

Uniloc

TITLE LABEL, I.S. BAS/ATEX 5081-T-FI

SIZE	DWG NO	REV
B	9241514-01	A

SCALE 2:1 SHEET 1 OF 2

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FISCO
ATEX INTRINSIC SAFETY INSTALLATION

REVISION					
LTR	ECO	DESCRIPTION	BY	DATE	CHK

D1400286

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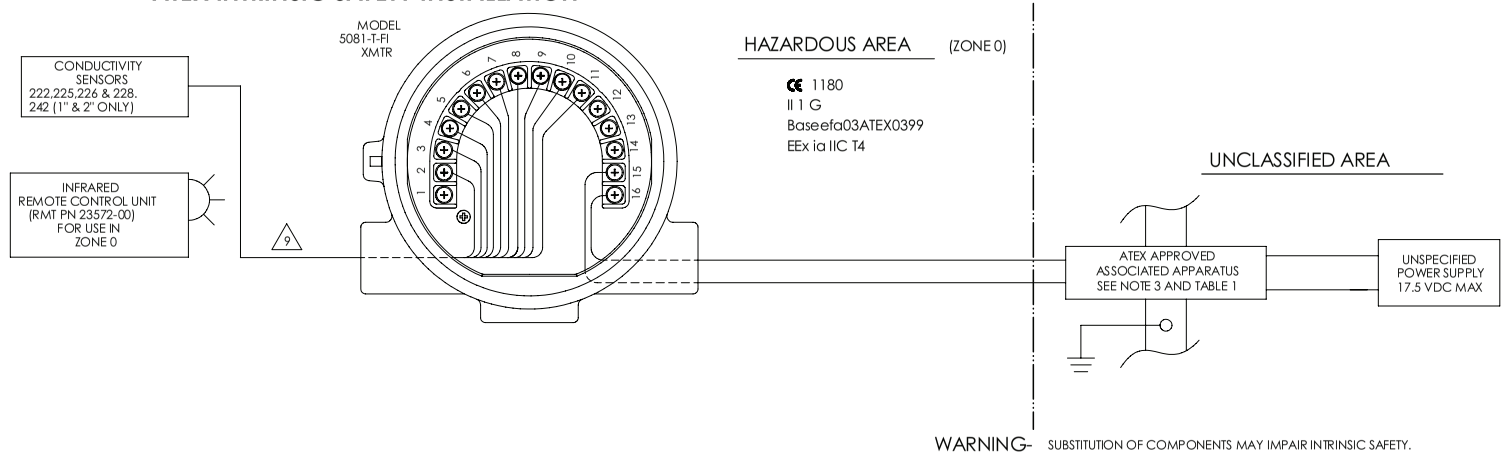

WARNING- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

9 MAXIMUM SENSOR CABLE LENGTH IS 250 FEET.

8. PROCESS RESISTIVITY MUST BE LESS THAN 10 OHMS.
7. USE SUPPLY WIRES SUITABLE FOR 5^C ABOVE SURROUNDING AMBIENT.
6. ANY ASSOCIATED APPARATUS MUST BE ATEX APPROVED.
5. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.
4. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.
3. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:

FIELD DEVICE INPUT	ASSOCIATED APPARATUS OUTPUT
Vmax OR Ui	≥ Voc, Vt OR Uo;
Imax OR Ii	≥ Isc, It OR Io;
Pmax OR Pi	≥ Po;
Ci+ Ccable;	≥ Ca, Ct OR Co
Li+ Lcable.	≥ La, Lt OR Lo

2. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 Ohm.
1. INTRINSICALLY SAFE APPARATUS (MODEL 5081-T-FI, FIELDBUS TERMINATOR AND ANY ADDITIONAL FIELDBUS DEVICES) AND ASSOCIATED APPARATUS (SAFETY BARRIER) SHALL MEET THE FOLLOWING REQUIREMENTS: THE VOLTAGE (Vmax) AND CURRENT (Imax) OF THE INTRINSICALLY SAFE APPARATUS MUST BE EQUAL TO OR GREATER THAN THE VOLTAGE (Voc OR Vt) AND CURRENT (Isc OR It) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS (SAFETY BARRIER). IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) OF THE INTRINSICALLY SAFE APPARATUS, INCLUDING INTERCONNECTING WIRING, MUST BE EQUAL OR LESS THAN THE CAPACITANCE (Ca) AND INDUCTANCE (La) WHICH CAN BE SAFELY CONNECTED TO THE APPARATUS. (REF. TABLE I).

NOTES: UNLESS OTHERWISE SPECIFIED

TABLE I

5081-T-FI ENTITY PARAMETERS SUPPLY / SIGNAL TERMINALS TB1 15 AND 16					
MODEL NO.	Vmax (Vdc)	Imax (mA)	Pmax (W)	Ci (uF)	Li (uH)
5081-T-FI	17.5	380	5.32	0	0

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UNLESS OTHERWISE SPECIFIED TOLERANCES
XX ± .03 ANGLES ± 1/2°
.XX ± .01
DIMENSIONS ARE IN INCHES
REMOVE BURRS & SHARP EDGES .020 MAX
MACHINED FILLET RADII .020 MAX
NOMINAL SURFACE FINISH 125
MATERIAL
FINISH

ITEM	PART NO.	DESCRIPTION	QTY
BILL OF MATERIAL			

APPROVALS		DATE
DRAWN	B. JOHNSON	5/3/04
CHECKED	J. FLOCK	5/6/04
PROJECT ENGR APVD	J. FLOCK	5/6/04

THIS DWG CREATED IN SOLID EDGE

Uniloc
Rosemount Analytical, Uniloc Division
2400 Barranca Pkwy
Irvine, CA 92606

TITLE
SCHEMATIC, INSTALLATION
5081-T-FI XMTR
ATEX ZONE 0

SIZE	DWG NO.	REV
D	1400286	A

SCALE NONE TYPE SHEET 1 OF 1

MAINTENANCE

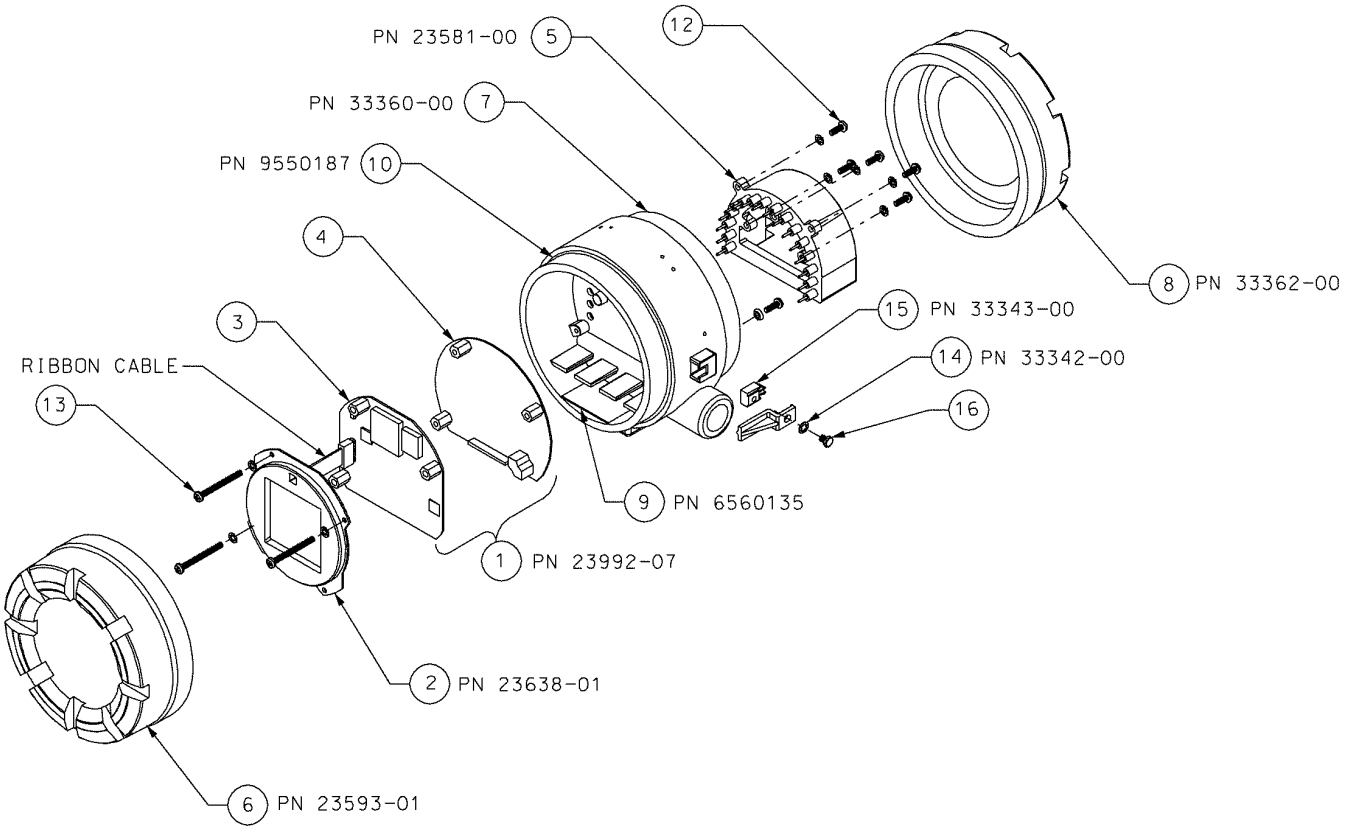
OVERVIEW

This section gives general procedures for routine maintenance of the 5081-T transmitter. The transmitter needs almost no routine maintenance.

TRANSMITTER MAINTENANCE

Periodically clean the transmitter window with household ammonia or glass cleaner. The detector for the infrared remote controller is located behind the window at the top of the transmitter face. The window in front of the detector must be kept clean.

Most components of the transmitter are replaceable. Refer to figure below and table on next page for parts and part numbers.



Exploded View of Model 5081-T-FF/FI Transmitter

Three screws (part 13 in the drawing) hold the three circuit boards in place. Removing the screws allows the display board (part 2) and the CPU board (part 3) to be easily removed. A ribbon cable connects the boards. The cable plugs into the CPU board and is permanently attached to the display board. A 16 pin and socket connector holds the CPU and analog (part 4) boards together. Five screws hold the terminal block (part 5) to the center housing (part 7), and the 16 pins on the terminal block mate with 16 sockets on the back side of the analog board. Use caution when separating the terminal block from the analog board. The pin and socket connection is tight.

Replacement Parts for Model 5081-T-FF/FI Transmitter

Location in drawing	PN	Description	Shipping Weight
1	23992-07	PCB stack consisting of the CPU (part 3) and analog (part 4) boards, display board is not included, CPU and analog boards are factory-calibrated as a unit and cannot be ordered separately	1 lb/0.5 kg
2	23638-01	LCD display PCB	1 lb/0.5 kg
5	33337-02	Terminal block	1 lb/0.5 kg
6	23593-01	Enclosure cover, front with glass window	3 lb/1.5 kg
7	33360-00	Enclosure, center housing	4 lb/1.5 kg
8	33362-00	Enclosure cover, rear	3 lb/1.0 kg
9	6560135	Desiccant in bag, one each	1 lb/0.5 kg
10	9550187	O-ring (2-252), one, front and rear covers each require an O-ring	1 lb/0.5 kg
12	note	Screw, 8-32 x 0.5 inch, for attaching terminal block to center housing	*
13	note	Screw, 8-32 x 1.75 inch, for attaching circuit board stack to center housing	*
14	33342-00	Cover lock	1 lb/0.5 kg
15	33343-00	Locking bracket nut	1 lb/0.5 kg
16	note	Screw, 10-24 x 0.38 inch, for attaching cover lock and locking bracket nut to center housing	*

NOTE: For information only. Screws cannot be purchased from Rosemount Analytical.
* Weights are rounded up to the nearest whole pound or 0.5 kg.

ENGINEERING SPECIFICATIONS

QUICK-START

1. On the Remote, press PROG, NEXT, ENTER.
2. Use the arrow buttons to select **COnduc** (conductivity), **nAOH** (Sodium Hydroxide 0-15%), **HCL** (Hydrochloric Acid 0-16%), **H2SO4L** (Sulfuric Acid 0-30%), **H2SO4H** (Sulfuric Acid 95-99.99%), or **CuSt** (custom curve) mode. Press ENTER. If you chose **CuSt**, continue with step 3. If you chose **COnduc** or one of the preprogrammed % concentration modes, skip step 3 and go to step 4.
3. If you selected **CuST**, you will see the Setup Custom screen. To move to the custom curve configuration menu, press ENTER. You will automatically return to this same Setup Custom screen after configuration is complete. To continue transmitter display programming, press NEXT in the Setup Custom screen.
4. Use the arrow keys to toggle temperature units between Celsius and Farenheit.
5. Press ENTER then RESET.
6. Press PROG, ENTER.
7. Use the arrow key to toggle **t AutO** to On or OFF to select using either the process temperature (**tAutO** = On) or a manual temperature (**tAutO** = OFF). Press ENTER. If you selected **t AutO** = OFF, you will be prompted to enter the manual temperature; use the arrow keys, then press ENTER.
8. If you selected **CondUC** in step 2, you will see a **COMP** (Temperature Compensation type) screen. Use the arrow keys to select desired temperature compensation: **LinEAr** (linear) or **nOnE** (raw or uncompensated conductivity). Press ENTER. If you are in **LinEAR** mode, you can now enter a particular temperature slope (default is 2%/degC), then press ENTER to apply the slope.
9. Press RESET.
10. Press CAL, NEXT, NEXT, NEXT, ENTER.
11. Use the arrow buttons to enter the cell constant of the sensor. Press ENTER, then EXIT.
12. To “zero” the sensor in air, press CAL, NEXT, ENTER.
13. Hold the sensor in air to zero. Press ENTER, then EXIT.
14. If you are measuring % concentration (**nAOH**, **HCL**, **H2SO4L**, or **H2SO4H**) or custom curve (**CuSt**), quick start is complete; proceed to step 20.
15. If you are measuring conductivity (**CondUC**), then standardize the sensor by placing the sensor in a solution of known conductivity value. Press CAL, ENTER.
16. Use the arrow buttons to enter the current conductivity value of the solution. Press ENTER.
17. Press RESET.

To reset transmiter to factory default settings:

1. Press PROGRAM, NEXT, NEXT, NEXT. The screen should say "**dEFAULt**". Press ENTER.
2. Use the arrow keys to toggle between **nO** (retain your configuration and calibration settings) and **YES** (restore factory default settings to all variables).
3. Press ENTER, then EXIT.

The right people,
the right answers,
right now.

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